Rob Bregman. 1996. **The Genus *Matucana*. Biology and Systematics of Fascinating Peruvian Cacti.** (ISBN 90-5410-638-7, hbk). A.A. Balkema, P.O. Box 1675, Rotterdam, Netherlands (Fax: 31-104-413-4947), published in the United States by A.A. Balkema Publishers, Old Post Rd., Brookfield, VT 05036 (Fax: 802-276-3837). $75.00. 116 pp. text, 20 pp. of appendices and index, 80 color plates, 26 SEM photographic plates with diagnostic drawings, 28 line illustrations.

This book is one in a series of horticultural taxonomic works published by A.A. Balkema, of the Netherlands. The genus *Matucana* belongs to the Cactaceae tribe Trichocereae subtribe Borzicactinae, and contains 19 species comprised of 27 taxa, including infraspecific varieties and forms, all endemic to the Western Andean Cordillera in Peru. Differences between the taxonomic philosophies of this work and that of Backeberg from the 1930s to the 1960s, specifically as interprered by Ritter (1981) are clearly evident throughout the text. This work, specifically oriented toward horticultural as well as taxonomic users, is markedly different from a standard taxonomic revision, owing to the recognition of four informal "species groups" recognized on the basis of seed morphology, the review of pollination and dispersal biology, cultivation information.

The book is divided into 13 chapters, including: 1) taxonomy and systematics, 2) morphology, 3) geography and ecology, 4) reproduction, 5) cultivation, 6) systematics inside *Matucana*-grouping of species, 7) key to all species of *Matucana*, 8) the haynei group, 9) the aurantiaca group, 10) the intertexta group, 11) the paucicostata group, 12) checklist, and finally 13) complete list of field numbers.

The general chaprers one through five are carefully done, with a lot of evidence obviously collected from living material in cultivation. In the systematics section, it becomes obvious that the author follows the taxonomic species concept, but unfortunarely, no clear discussions are included to justify why a certain species a particular group of synonyms. Statements like (page 50) "To summarize, the differences between all taxa listed here as synonyms of *M. haynei* are too small to treat them as species," are found in discussions after many of the species. While the author gives extensive synonymy lists, type specimens are not listed directly under the basionym, nor for any of the synonyms. The reader is left without knowing if types exist for all the names, if any or all have been lectotypified, etc. Listing of the numerous *nomina nuda* is ill-advised, and I would have left that portion out unless they were actually published. There is no formal generic description, nor citation of a type, although references to *M. haynei* as the oldest name in the group and the discussion of its former monotypic circumscription give us the idea.

While the author has obviously devoted years to the study of this group, I think the systematic value of the monograph is compromised by its very non-standard format. One is not sure if all historical specimens have been re-studied, nor synonyms typified, and the phylogeny portion of each species' discussion gives us no clear picture of the salient features that determines the author's placement of the taxon. It is abundantly clear that seed morphology is employed to delimit the four infrageneric groups, but the illustrations on page 36 lead this reader to think that the groups are difficult to recognize, especially because the seeds must be mature, and all portions of the seed must be intact for one to recognize the characters.

In summary, while this monograph is not a standard systematic treatment, it is an important conrribution to a poorly understood, but important group of cacti. It will be a

must for all concerned with the Cactaceae, with the Flora of Peru and the dynamics of the vegetation in the Peruvian Western Cordillera. The SEM photos, color photographs, and line drawings are helpful, as are the indices. It should certainly form part of any botanical or horticultural library.—*John J. Pipoly III.*

WALTER S. JUDD, CHRISTOPHER S. CAMPBELL, ELIZABETH A. KELLOGG, and PETER F. STEVENS. 1999. **Plant Systematics: A Phylogenetic Approach.** (ISBN 0-87893-404-9, hbk.). Sinauer Associates, Inc., 23 Plumtree Road, Sunderland, MA 01375-0407, USA. $67.95. 464 pp., numerous figures and CD-ROM with over 650 color photographs and three printable appendices.

Having recently watched again the movie, *Mary Poppins*, I am reminded of a phrase (no, not "supercalifragilisticexpialidoceous") that can be applied to this new text for undergraduate courses in plant systematics—"practically perfect in every way." This is the first such text that is a product of teamwork and is the best to come along since George Lawrence's *Taxonomy of Vascular Plants* of 1951. The authors, all recognized leaders in plant systematics, are former students and associates of Drs. Carroll Wood and Richard Howard. In fact, the book was conceived while most of them were fellow graduate students at Harvard. They wisely and fortuitously waited until they had professionally matured and macromolecular techniques became widely applied before making the idea a reality. The result is a textbook that is easily digested by students who have already mastered basic botany, portrays the vitality and uncertainties of the current state of knowledge in the field, and introduces both the principles of systematics and plants families of worldwide importance. Because the authors are strong advocates of the use of cladistic methods in both research and teaching, phylogenetic concepts are integrated from the introduction to the last family treatment. The goal is not the indoctrination of the conviction that cladistic approaches are better than others. Rather, they hope to make students conversant with the current research paradigm and to understand the rationale used to justify the taxa presented.

I find the sequence of topics follows a logical progression. After a brief introduction of plant systematics in Chapter One, the second chapter provides a thorough primer of cladistic methods and a comparison of cladistic, phenetic, and evolutionary schools. Here, the distinction between grouping, naming, and ranking taxa is lucidly explained. The historical background in Chapter Three is arranged topically and then chronologically, i.e., the development of understanding relationships vs. development of the formation of higher taxa. The next two chapters survey the data synthesized by systematists. Categories of morphological, anatomical, and chemical structures are introduced and important terms are defined. However, jargon is minimal (e.g., leaf shapes are reduced to four with auxiliary modifiers such as "narrowly"), many terms are introduced only in defining diagrams, and others are introduced and defined only in the family treatments (e.g., unique cucurbitoid teeth, which are diagnostic for Cucurbitales). Pollination, dispersal, breeding systems, and chromosomes are discussed with specific examples from the literature to illustrate how these data are used. Professors, especially those not trained in molecular systematics, will appreciate the thorough overview of genome structure, laboratory methods, data types, data analysis, and problems such as species trees versus gene trees. Chapter Six focuses on theoretic as-